

Table 2

*Types of Regret After SRS*

	Feelings expressed	Feelings not expressed
<b>Role reversal</b>	1. Individuals express regret about their decision to undergo SRS, and they live in their former gender role and/or apply for a second SRS. This is the clearest manifestation of regret.	3. Individuals do not live any longer in their new gender role, but do not express any regret. Some may even state that they are happy about their decision and still consider themselves transsexuals. The choice to live in their original gender role is made for practical, social reasons.
<b>No role reversal</b>	2. Individuals express the feeling that they would never consider SRS again when in the same position as before treatment, or even express regret about their decision, but do not make a gender role reversal. Although these individuals are truly disappointed about the results of SRS, life in the new gender role does not appear to be so difficult that they consider a second SRS.	4. Individuals do not openly express any feelings of regret with respect to their SRS, nor make an attempt to reverse their current situation, but clinicians, relatives, or others may attribute unfavorable social and/or psychological circumstances (e.g., feelings of loneliness, suicide attempts, or psychiatric problems) to feelings of regret.

some regrets during and after treatment, reported she would choose to undergo SRS a second time. Five other participants (4 MFs, 1 FM) had experienced some feelings of regret about living in the opposite gender role during treatment only but had no desire or intention to resume their original gender role. Lobato et al. (2006) had no patients reporting regret 2 years after surgery in their follow-up study of 19 out of 30 patients (29 MFs, 1 FM). Major postoperative regret is dramatic for many individuals (e.g., Olsson & Möller, 2006), but our clinical experience indicates that not every patient experiences the decision to make a complete gender role reversal after SRS as a mistake. Instead, some persons see it as a necessary or helpful step to find out who they really are (Kuiper & Cohen-Kettenis, 1998). Many clinicians may not share this opinion, accepting false negatives more readily than false positives.

What are the predictors of regret? In an early study, Walinder, Lundström, and Thuwe (1978) found no fewer than 13 factors that predicted regret: psychotic reactions, mental retardation, an unstable personality, addictions, criminal behavior, inadequacy in self-support, lack of social support, a long distance from the gender team, heterosexual experience, strong sexual desire, completed military service, poor physical build for the new sex role, and advanced age when applying for SRS. Later investigators did not find the same predictive factors, and between studies

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the variation in discrete predictive factors was rather large (e.g., Blanchard, Steiner, Clemmensen & Dickey, 1989; Kuiper & Cohen-Kettenis, 1998; Landen et al., 1998; Lawrence, 2003; Lindemalm, Korlin, & Uddenberg, 1987; Pfäfflin, 1992; Smith et al., 2005a, 2005b). It seems that presently, based on the few systematic studies regarding the negative outcomes of SRS, no one single risk factor is an absolute contraindication for SRS. Green and Fleming (1990) tentatively identified four preoperative predictors of a successful SRS outcome: (a) psychological stability over the lifetime, (b) a successful real life experience for at least 1 year as a member of the opposite sex, (c) an adequate understanding of what surgery can and cannot do, and (d) preoperative psychotherapy specifically tailored to the gender dysphoria and integrated with a gender identity program.

Later reviewers reached much the same conclusion, namely that the best predictors of an unsuccessful outcome and regret are (a) an inadequate diagnosis, mostly related to severe comorbidity; (b) a disappointing real life experience that did not lead to the desired outcomes; and (c) a poor quality of the outcomes of surgery (aesthetically and medically; Cohen-Kettenis & Gooren, 1999; Pfäfflin, 1992). However, the protective role of psychotherapy preoperatively was not confirmed in the important study of Lawrence (2003; see also Lawrence, 2006b). In her follow-up of 232 MFs, Lawrence found that the amount of preoperative psychotherapy was not correlated with the outcome of SRS and that more than 12 hours of preoperative psychotherapy was significantly negatively correlated (-0.18) with the Happiness With the Result of the SRS factor. Also of importance is that Lawrence (2003) could not confirm earlier results that well-known typological differences between subjects who undergo SRS predict a favorable outcome. More specifically, Lawrence (2003) could not corroborate the earlier results of Blanchard and coworkers (1989) who found that MFs preoperatively sexually oriented to men regretted SRS less than MFs preoperatively sexually oriented toward women. Smith et al. (2005a, 2005b) reached nearly the same conclusion as Lawrence regarding the role of typological differences in predicting the outcome of SRS, although Smith et al. (2005a, p. 94) did find that nonhomosexuals reported more feelings of regret during, but not after, treatment. Lawrence (2003, 2006b, 2007a) hypothesized that the differences between results of Blanchard et al.'s study (1989) and her own results are the consequence of greater societal tolerance in North America and Europe, which make it possible for late onset or homosexual transsexuals to go through the process of SRS more successfully now than 20 or more years ago. However, this hypothesis has not yet been vali-

dated. In general, it remains true that although postoperative regret after SRS is rare, little empirical research has been done into the concept and functioning of the regret.

### **The Role of Sexuality in GID and Outcome Studies: A New Phenomenon?**

The role of sexuality in the lives of gender variant people or people with GID seemed clear in 1969 when Pomeroy, drawing on in depth interviews with eight MFs following SRS, concluded: "They seemed to be on the road to making a good sexual adjustment, at least a better one than they were able to make as males, and in this respect, there is every reason to believe that conversion operations were beneficial" (p. 188). Later researchers, however, did not always obtain positive results. For example, Raufleish and colleagues (1998) reported in a Swiss follow-up study of 13 MFs, with surgeries between 1970 and 1990, that many MFs had sexual problems. Eight were dissatisfied with their sex life and experienced little sexual pleasure; 10 were not orgasmic and had little sexual desire; and 2 had stopped sexual activities because of the painful complications and poor results of the SRS. Nevertheless eight (77%) of the patients were satisfied with the results of the SRS. This follow-up included four FMs. Two of the four had a satisfying relationship and were satisfied with their sex life. The two others were living alone. Thus, two were satisfied and two were not.

Although in many follow-up studies participants were asked about their sexuality, Green (1998) and De Cuypere et al. (2005), more recently, concluded that little is known about sexuality in persons with GID. At first, this might look like an odd remark, because it seems unlikely that the development of a GID would not impact upon the development of sexuality, and vice versa. Furthermore, it seems unimaginable that SRS would not have an impact on sexuality, because genitals are important organs for human sexual functioning. Nevertheless, since 2000, the sexuality of persons with GID has now gained renewed and more systematic attention. Here, we will not discuss the controversial issue of the role that sexuality, especially sexual orientation and autogynephilia, may play in the development of GID (see Bailey, 2003, Blanchard, 2005; Dreger, in press; Gooren, 2006; Lawrence, 2004, 2006a, 2007a). Instead we focus on what is known about the sexual functioning of persons with GID after SRS. After attention to sexual orientation, sexual activity and partner relationships, and the sexual response cycle, some evaluative comments will be made. We will pay major attention to the more recent studies involving large samples.

*Sexual Orientation*

What is the sexual orientation of transsexual people? This very thorny question is clearly associated with different conceptualizations of the core parameters of sexual orientation (e.g., Gooren, 2006; Lawrence, 2005) and also correlated with the debate on the role of the sexual orientation in the development of GID or gender variance (Gijs, 2007; Gooren, 2006; Lawrence, 2004, 2005, 2006a, 2007a). Here, we limited our review to the question of how many transsexual people are heterosexual, bisexual, homosexual, and/or asexual. The *DSM-IV-TR* (2000) defines sexual orientation as erotic attraction towards males, females, both, or neither. FM transsexuals were commonly believed to be attracted to females—using the natal biological sex as the definitional criterion for the determination of sexual orientation, one would classify these persons as homosexual. More recent studies, however, revealed greater variety in sexual orientation. The majority, indeed, appeared to be attracted to women, but approximately 30% reported primary attraction towards men (Coleman, Bockting, & Gooren, 1993, Chivers & Bailey, 2000). In their study, Chivers and Bailey found interesting differences between groups with different sexual orientations. Although the desire for masculinizing body modifications was similar in both types, the homosexual group reported more childhood gender nonconformity, was sexually more active, had a greater desire for phalloplasty, and experienced more sexual jealousy (Chivers & Bailey, 2000).

MF transsexuals are a more heterogeneous group with regard to sexual orientation, as shown by the large variation in the prevalence of homosexuality or nonhomosexuality among studies (Lawrence 2005). For example, in her review of older studies published between 1974 and 1999, Lawrence (2005) documented that the highest prevalence of a homosexual orientation was 80% and the lowest 14%, preoperatively. Postoperatively, the different studies still showed great differences, 95% to 41%, although this variation in the prevalence of a homosexual orientation may be partly due to the lack of uniformity in the parameters used to define sexual orientation. In recent studies, different prevalence rates were also found. De Cuypere and Smith, for example, using a non-homosexual (NHS) and homosexual (HS) classification, reported that more than half of their study sample was homosexual (51% NHS and 56% HS; De Cuypere et al., 2005, Smith et al., 2005a, 2005b). Lawrence (2005), using four categories, revealed startlingly different figures, especially for homosexuality: 9% homosexual, 32% bisexual, 25% asexual, and 54% heterosexual.



Comparing older studies from the 1970s with recent ones shows a trend towards an increase in the number of nonhomosexuals and a decrease in number of homosexuals in MFs (Lawrence, 2005; Lawrence, Latty, Chivers, & Bailey, 2005). Sample bias may have caused this shift, but, as Lawrence pointed out, a growing societal tolerance towards the transgender phenomenon as a whole might also have enhanced the coming out of this nonhomosexual group. Compared with the homosexual group, nonhomosexual transsexuals were older when applying for SRS, had less visible feminine traits, and had a "normal family life" prior to coming out, all factors that negatively influenced their chance of a successful coming out in previous years (Lawrence, 2003, 2005). Those results of Lawrence closely resemble the results of Smith and coworkers (2005a, 2005b) who found that on average homosexuals were younger when applying for SRS, and homosexual transsexuals functioned better psychologically than nonhomosexuals.

Does sexual orientation change after SRS? The traditional hypothesis with regard to transsexuals has been that sexual orientation remains unchanged after SRS treatment (Daskalos, 1998; Lawrence, 2005; see also Gooren, 2006). The assumption for transsexuals is based on the prior assumption that sexual orientation remains stable in time for most typical biological men and women (Gooren, 2006). Biological women, however, appear to be more flexible than men with regard to the gender of their sexual partners, and in their lives changes in sexual orientation and identity occur more frequently (Diamond, 2005). As to stable sexual orientation in transsexuals, studies reveal the following trend: The great majority of FM transsexuals did not change their sexual orientation after treatment (Chivers & Bailey, 2000; De Cuypere, Jannes, & Rubens, 1995; De Cuypere et al., 2005; Lawrence, 2005; Verschoor & Poortinga, 1988). De Cuypere and colleagues (2005), for example, found that before SRS all 19 FMs with a stable relationship had a sexual partner of the same biological sex, whereas after SRS only one FM of 23 with a steady relationship chose a male partner. Among MF transsexuals, shifts in sexual orientation after transition are more common. De Cuypere and colleagues (2005), for example, found that 45.5% of the 32 MFs in a stable sexual relationship chose a female partner before surgery, whereas 26.3% had a female partner after surgery. In another recent prototypical study, Lawrence (2005) reported that 30 MF persons of her sample ( $N = 227$ ; cf. Table IV, p. 153) were (almost) exclusively attracted to females before SRS and (almost) exclusively to males after SRS; however, no validated explanation for these changes is known. A number of

researchers comparing data prior to SRS with posttreatment data found that the percentage of homosexuals increased significantly after SRS (De Cuypere et al., 2005; Lawrence et al., 2005; Muirhead-Alwood, Royle, & Young, 1999; Schroder & Carrol, 1999). A straightforward explanation for this phenomenon is also lacking.

#### *Sexual Activity and Partner Relationships*

Little is known about the sexual partner relationships and sexual activity of transsexual people *before* they transition. Some have assumed that persons with GID would be asexual before SRS (e.g., Snaith, 1994; see also Pomeroy, 1969) or that sexuality is relatively unimportant for people with GID (L. Gooren, personal communication, October 2, 2006). Others have suggested a de-eroticized image of transsexual people, and especially of MFs or transwomen, because they were convinced that by presenting such an image, people would obtain SRS more easily (Dreger, in press). Although prospective studies are lacking, the general clinical impression is that for those with gender dysphoric feelings from childhood on, the awareness of being born in the wrong body often kept them from engaging in intimate and sexual relationships during puberty and adolescence. Moreover, the majority had to deal with the stigma of being labelled homosexual during adolescence. Late onset transsexuals, who have no or less obvious gender dysphoric feelings during childhood and adolescence—or even early adulthood—have a more typical development of sexuality (e.g., Lawrence, 2004). This is especially true of late onset MFs, who are often married to a heterosexual female and have started a family (Lawrence, 2004, 2006a). Although most of them had engaged in some cross-dressing activities after puberty (and often periodically stopped under relational pressure), they kept their gender dysphoric feelings hidden. For this group of married MFs, their coming out as transsexuals and their gender transition were frequently the cause of marriage disruption. Only 11% of those who were married still lived with their spouse after SRS (Bodlund & Kullgren, 1996; Kockott & Fahrner, 1988; Lawrence 2005).

Only a few investigators have found that FMs with a steady partner before treatment remained with the same partner during and after transition (Bodlund & Kullgren, 1996; Kockott & Fahrner 1988). Several have found that, after their transition, about half of both MF and FM transsexuals had a stable sexual relationship (e.g., De Cuypere et al., 2005). Half of these relationships started before the final stage of SR (De Cuypere et al., 2005; Lawrence et al., 2005; Lobato et al., 2006; Smith et al., 2005a). FMs, as compared to MFs, reported having more

difficulties in starting a new relationship (De Cuypere et al., 2005). Despite their masculine appearance, uncertainty about their maleness made them refrain from sexual encounters. More FMs (33%) than MFs (25%) were sexually inactive (De Cuypere et al., 2005). For the majority of those without a steady sexual relationship, feelings of loneliness and difficulties in finding an appropriate partner were major challenges (De Cuypere et al., 2005; Eldh et al., 1997; Lawrence et al. 2005; Lobato et al., 2006; Smith., 2005a).

*Sexual Arousal, Orgasm, and Sexual Satisfaction*

Reported orgasmic capacity and/or sexual satisfaction among postoperative transsexuals varies among studies (Gijs, 2007). Some authors reported a diminished experience of sexual arousal and orgasm (e.g., Lief & Hubschman, 1993), and others reported an increased capacity (e.g., Stein et al., 1990). The use of different measures, often of unproven reliability, such as single item questions and asked in a context highly influenced by social desirability, might explain the differences (De Cuypere et al., 2005; Eldh et al., 1997; Krege et al., 2001; Lawrence et al., 2005; Lobato et al., 2006; Muirhead-Alwood et al., 1999; Schroder & Carrol, 1999; Smith et al., 2005a). Interestingly, in recent large studies (De Cuypere et al., 2005; Hoebeke, De Cuypere, Ceulemans, & Monstrey 2003; Lawrence, 2005; Smith et al., 2005a) higher rates of sexual arousal and orgasm have been reported. De Cuypere et al. (2005) found that for those who were sexually active, 60% were very satisfied with their sex life, 18% remained neutral, and 22% were dissatisfied. They also reported that 87% of their sample were able to reach orgasm during masturbation. There were no differences between MFs and FMs regarding the ability to reach orgasm in sex with their partner, although there was a nonsignificant difference in the frequency of reaching orgasm postoperatively: 50% of MFs (almost) always reached orgasm with their partner in sexual intercourse, and 77.8% of FMs experienced orgasm under the same conditions (De Cuypere et al., 2005). Hoebeke et al. (2003) reported on a (sub)group of 35 FMs who received an erection prosthesis as a part of genital reconstructive surgery. In three patients, the erection prosthesis was removed and not replaced. Twenty-nine of these patients were sexually active, and they and their partner were sexually satisfied. Lawrence (2005) reported that 85% of her sample was orgasmic after SRS. Smith and colleagues (2005a) found that 82% of FMs with a steady relationship were orgasmic, as were 42% of MFs with a partner. But both groups were equally satisfied sexually (88.5%). Very good results were also reported in Lobato et al. (2006): 88.8% were (very) satisfied

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with sexuality after SRS. It seems likely—but has not been studied systematically—that improvements in surgical techniques and better cosmetic results contributed to these better, recent results.

Overall, sexual satisfaction appeared to increase after SRS in both MF and FM transsexuals (e.g., Stein et al., 1990), but in some follow-up studies, especially older ones, a deterioration or no improvement of sexuality after SRS (e.g., Raufleish et al., 1998; Tsoi et al., 1995) was reported. In the study of De Cuypere et al. (2005), 75.5% reported an improvement in their sex life after SRS, whereas 12.3% experienced a worsening. Very similar results were reported in Lobato et al. (2006): 83.3% of the patients experienced an improvement in sexuality after SRS. For the majority, the disappearance of former gender dysphoric feelings altered their sexual experience in positive ways. Bodily sex characteristics now appropriate for their primary sexual feelings resulted in an increased sexual self-esteem, a more positive body image, and less anxiety when engaging in sexual encounters (De Cuypere et al., 2005). About 50% of postoperative transsexuals reported being satisfied with their sexual lives, and those with a sexual partner scored significantly higher than those without (De Cuypere et al., 2005; Smith et al., 2005a). Sexual satisfaction appeared to be highly correlated (0.49) with overall life satisfaction (De Cuypere et al., 2005), confirming that physical and functional results of surgery were found to be a major indicator of quality of life after SRS (De Cuypere et al., 2005; see also Lawrence, 2003, 2006b).

A closer look at the phases of the sexual response cycle revealed some differences between FM and MF transsexuals. Overall, FMs reported a clear increase in sexual desire, arousability, and the experience of orgasm after treatment (De Cuypere et al., 2005). The picture among MFs showed more variation. Some reported a decreased libido, but more than half achieved orgasm through masturbation or intercourse (De Cuypere et al., 2005; Smith et al., 2005a). Lawrence et al. (2005) even reported that, compared with a sample of American biological women, no differences were found in the frequency of achieving orgasm. Smith et al. (2005a), however, reported a major difference in the capacity to reach orgasm between FMs (82%) and MFs (42%). However, the groups did not differ in sexual satisfaction. Interestingly, qualitative data indicated a change in the subjective orgasmic experience: “smoother, longer, and involving more body parts” for the MFs, “more powerful and shorter” for the FMs (De Cuypere et al., 2005). This feminization of the sexual experience among the MFs and masculinization among the FMs is likely influenced by the changing testosterone levels resulting from hormonal treatment (Feldman & Goldberg, 2006). As far as we know, no systematic studies on the sexual



effects of prescribed cross-sex hormones have been published, but the first results of an ongoing study by Elaut et al. (in press) showed no correlation between testosterone and sexual desire in MFs.

Until recently, all data were based on self-report, but the work of Balsma et al. (1995), Brotto, Gehring, Klein, Gorzalka, Thomson, and Knudson (2005), and Chivers, Rieger, Latty, and Bailey (2004; see also Lawrence et al., 2005) introduced psychophysiological measures into this field. These measures provided insight into, for example, the concordance between subjective experiences and genital responses and the nature of gendered response in transsexual people. Comparing the results of an MF group with those of biological women, Balsma and colleagues (1995) and Lawrence and coworkers (2005) found that physiological sexual arousal was lower among transsexuals than among biological women. They hypothesized that differences in the innervation and blood flow between the natal and neovagina accounted for the differing results. Lower testosterone levels in the transsexual women might also play a role. Such physiological limitations might impair the overall subjective feeling of sexual satisfaction, but despite this, many studies indicate a high level of overall sexual satisfaction. Chivers and colleagues (2004; see also Lawrence et al., 2005) demonstrated furthermore that MF transsexuals show a male-typical genital response pattern to erotic stimuli: a strong genital reaction to the preferred sex and a weak response to the nonpreferred sex. This result is not without clinical implications: The neovagina still responds in a male-typical pattern, which implicates that sexuality in MF patients with GID does not function in a unitary (female) way, but instead shows variation and follows sometimes male-typical patterns. Clinicians should be aware of this phenomenon and inform their patients or clients about it, without implying that this male-typical pattern invalidates the female gender identity.

*Sexuality of Adults With Gender Identity Disorder: Some Comments*

Systematic knowledge about the sexual functioning of transsexual people remains sparse. Most investigators of this subject have collected information primarily by self-report after SRS (Green, 1998). Moreover, some studies suffer from a number of methodological weaknesses, such as small sample sizes, low response rates, retrospective collection of pretreatment data, and unreliable measures. Many studies have high attrition rates, and no prospective longitudinal studies exist to determine long-term sexuality and sexual relationship development in people with GID. Even less is known about gender variant people who do not undergo SRS. Little comparative work has been done on the sexual

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effects of different surgical techniques. Does, for example, the construction of a metaidoioplasty lead to other sexual effects than the construction of a phalloplasty? More generally, which theoretical model of sexuality is guiding surgical reconstructive surgery? Also, little empirical work has been done on the sexual effects of hormonal interventions in the treatment of GID. The general clinical impression has been well described by Feldman and Goldberg (2006, p. 22): "Testosterone therapy tends to increase libido among FTM patients, while feminizing endocrine agents tend to reduce libido, reduce erectile function, and decrease ejaculation among MTF patients." However, corroborating empirical research is lacking.

With these limitations in mind, what is our conclusion regarding the sexuality of adults who have undergone SRS? In general, people with gender variant behavior or GID show a great deal of variation in their sexuality. For example, in the follow-up studies reviewed, sexual satisfaction is reported by 25% to 88.5% of FMs and by 20% to 92% of MFs; sexual dissatisfaction is reported by 5.5% to 75% of FMs and by 5.8% to 80% of MFs (Gijs, 2007). Clearly, many transgendered people live sexually satisfying lives, but others do not. Unfortunately, we do not know the determinants of their satisfaction, and we have no sound theoretical models to understand this variability. Perhaps models of the development of sexual identity in typical females and males (e.g., Diamond, 2005) can be used to study the identity development of FMs and MFs, as recently explored by Schrock and colleagues (Schrock, Reid & Boyd, 2005; Schrock & Reid, 2006). For the substantial number of transsexuals not sexually satisfied, finding a partner and achieving a satisfying sexual life after their transition remains a major challenge that often is associated with loneliness. We do not know how many consult sexologists, nor do we know how they are treated, as little has been published about sexological care for persons whose GID has been alleviated.

**Effects of SR in Adolescents**

About 20 years ago, the decision to start the SR procedure before adulthood (< 18 years) was made in The Netherlands. At the time, the only other gender identity clinic for children and adolescents, in Toronto, did not follow this policy. Therefore, no literature existed on SR or even hormone treatment before adulthood. The policy change in The Netherlands was made after a few adolescents with overwhelming and clear-cut GID came to the attention of clinicians (Cohen-Kettenis & Pfäfflin, 2003). Despite many years of psychotherapy, these young people continued to suffer from GID. Clinicians decided to, first, treat males with anti-androgens and with estrogens after a few months, pro-

vided they functioned well; they treated females first with progesterone to stop menstrual bleeding and androgens later (Gooren & Delemarre-van de Waal, 1996). The minimum age set for this treatment was 16 years. Despite the legal competence of adolescents to make decisions on their medical treatment, parents were involved in the diagnostic phase and required to endorse the request for treatment. Because parents who did not endorse treatment probably did not allow their child to be sent to the clinic, parents were usually supportive of their child's wish.

This treatment has been evaluated in several studies (Cohen-Kettenis & van Goozen, 1997; Smith, Cohen, & Cohen-Kettenis, 2002; Smith, van Goozen, Cohen-Kettenis, 2001; Smith et al., 2005a, 2005b). The postoperative period of these studies varied between 1-5 years. From these studies, it appeared that the youth who had started hormone treatment between 16 and 18 years of age no longer suffered from gender dysphoria and that they were socially and psychologically functioning comparably with nongender dysphoric age mates. Their scores on the psychological instruments, which were similar for both the adolescent and adult outcome studies, were considerably more favorable than scores for a group of subjects who had been treated for gender dysphoria in adulthood in the Amsterdam clinic (Kuiper & Cohen-Kettenis, 1988). In addition, it appeared that most adolescents who had not been found eligible for early treatment did not pursue SR at later ages. From this, one may conclude that selection for suitable candidates for SR before adulthood is possible.

#### **Delaying Puberty: A New Development**

Over the last decade, a rapidly increasing number of applicants for SR between the ages of 12 and 16 have come to gender identity clinics for help, most of them accompanied and supported by their parents. As a result, early treatment is now offered in Australia, Belgium, Canada, The Netherlands, Norway, and the United States. When these applicants understand that the development of the secondary sex characteristics of their biological sex can be only incompletely reversed after the age of 16 years, they are not willing to wait. As noted above, clinicians appear to be increasingly willing to start medical interventions even before 16 years (but *after* puberty has started, which is at least Tanner stage 2). These interventions should not be considered SR per se. By suppressing puberty by means of GnRH analogues (Cohen-Kettenis & van Goozen, 1998), clinicians can "buy time" to explore thoroughly the applicant's wish for SR without the added distress of the physical pubertal development.

GnRH analogue treatment of young adolescents is offered by clinics in Belgium, Canada, The Netherlands, Norway, and the U.S., and in

many private practices. GnRH analogues are also used in the U.K., but only after Tanner stage 4/5. Clinicians have various reasons for their reluctance to treat adolescents before Tanner stage 4/5 with GnRH analogues. Some feel that it is not possible to make a GID diagnosis in adolescence, because in adolescence, gender identity is still fluctuating. However, this explanation is not in accord with what we know about the persistence of GID in youth. Indeed, GID at prepubertal ages decreases or even disappears in a considerable percentage of children after they have reached puberty. Estimates range from 80%-95% (Zucker & Bradley, 1995; Cohen-Kettenis, 2001), clearly implying that any medical intervention in childhood would seem premature. After puberty, however, GID seems to be highly persistent (Wren, 2000). At the Amsterdam gender identity clinic for adolescents, none of the 13 FM and 7 MF patients referred for gender identity problems in adolescence and subsequently diagnosed with full-blown GID dropped out of treatment during or regretted treatment after surgery (Cohen-Kettenis & van Goozen, 1997; Smith et al., 2001; Smith et al., 2005a). Even those who were not allowed to start early treatment because of serious psychiatric comorbidity persisted in their wish for SR and were usually treated after their comorbidity had been addressed properly. With the increasing insight these studies provide, the criteria for early eligibility will probably also be adjusted.

Another estimated risk of blocking puberty through GnRH relates to the development of bone mass, growth, and brain development. However, the first data of a Dutch cohort of adolescents treated with GnRH analogues suggest that, after an initial slowing in bone maturation, development caught up after the start of cross-sex hormone treatment. Also, body proportions (sitting height and sitting-height/height ratio) remained in the normal range (Delemarre-van de Waal & Cohen-Kettenis, 2006). Early treatment seems to result in a final height for MFs that is in the normal female range. For FMs, a timely administration of Oxandrolone, a man-made anabolic steroid that binds to the androgen receptor that facilitates growth, weight, and muscle strength may result in acceptable male height (Delemarre-van de Waal & Cohen-Kettenis, 2006). Effects of the suppression of pubertal hormones on brain development, currently under investigation, are not yet known. Clinically, there seem to be no effects on social, emotional, and school functioning, but the effects may be too subtle to observe during clinical assessments.

A final argument against the hormonal suppression for MFs is that in a non-normal pubertal phallic growth, the penile tissue available for vaginoplasty may be less than optimal. However, appropriate techniques exist to overcome the shortage of tissue (Kapoor et al., 2006).



Despite these potentially negative aspects of pubertal suppression, there are also good reasons to allow adolescents to start with the GnRH analogues at Tanner stage 2. First, delaying the start of treatment (even >16 years) has its psychological drawbacks. Suppressing the physical features of puberty constitutes an immediate relief of the patient's suffering. Second, pubertal suppression may give both adolescent and clinician more time to explore the SR wish, without the distress of the developing secondary sex characteristics, which improve the precision of the diagnosis. Third, those who will (continue to) live in the desired gender role as adults can pass without problem in that role. For them, the procedure is a great and life-long advantage. In addition, pubertal suppression makes certain forms of surgery unnecessary or less invasive (e.g., breast reduction in FMs). Finally, one may be concerned about youth who have no access to regular treatment. They may try to find medication without medical supervision and completely withdraw from any health care.

Some clinicians argue that since it is not possible for adolescents to give valid informed consent to pubertal suppression, because its risks are partially unknown, pubertal suppression is unethical. However, Giordano (in press) pointed out that much medical research on humans would be unethical, if it were not possible to consent to interventions with uncertain outcomes. To give valid consent, the applicant must receive complete information about treatment and must be informed of the unknown risks of each stage of therapy. The person involved can then balance the unknown risks and potential benefits of treatment, as well as known psychological and physical effects of nontreatment. In judging the desirability of pubertal suppression as a first phase in the sex reassignment procedure, one should take into account more than the consequences of the intervention: Nonintervention is not a neutral option, but has a negative life-long impact on the quality of life of nontreated adolescents. Realizing the potential harmfulness of nonintervention, one may even wonder whether not treating may not only be doubtful on ethical grounds, but also have legal implications (Whittle, 2002).

### Discussion

The first modern attempts at SRS on adults were performed around 1930 (Demmers, 2004; Meyerowitz, 2002). These surgical interventions were strongly condemned because they were seen as an ineffective acceptance of a psychiatric disorder instead of attempting to cure the underlying pathology. Ever since these first operations, SRS has remained controversial, but in the last 25 years of the 20<sup>th</sup> century it became the dominant treatment for transsexuality and the *only* treat-

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ment that has been evaluated empirically (psychotherapeutic treatments to cure GID almost disappeared totally and were never systematically empirically validated). How effective is SRS? Can we, just as Green and Fleming (1990), conclude that, "to clinicians and their patients, labeling sex reassignment surgery 'cosmetic' is a cynical disregard for the pain of gender dysphoria. As for reassignment being experimental, 25 years of sex reassignment has demonstrated its clinical utility for many patients" (p. 173).

Summarizing the results from the 18 outcome studies of the last 2 decades, the conclusion that SR is the most appropriate treatment to alleviate the suffering of extremely gender dysphoric individuals still stands: 96% of the persons who underwent SRS were satisfied and regret was rare. However, even today this conclusion is based on methodologically less than perfectly designed studies. In medicine and psychology, several systems exist to assess the quality of the evidence supporting certain forms of treatment (e.g., American Psychological Presidential Task Force on Evidence-Based Practice, 2006; Nathan & Gorman, 1998; Steinbrook, 2007). One such system has been developed by the Oxford Centre for Evidence-Based Medicine (CEBM) and distinguishes four levels of evidence (LOE). In this system Level A refers to "consistent randomized controlled clinical trial, cohort study, all or none, clinical decision rule validated in different populations." Level B refers to "consistent retrospective cohort, exploratory cohort, ecological study, outcomes research, case-control study, or extrapolation from Level A studies." Level C signals "case series study or extrapolations from Level B studies," and Level D concerns "expert opinion without explicit critical appraisal, or based on physiology, bench research or first principles."<sup>1</sup> After reviewing the outcome literature Monstrey and De Cuypere (2007) concluded that the quality of the evaluations of the effectiveness of SRS reached, at most, Level B. Certainly, controlled outcome studies and other Level A outcome studies evaluating the effectiveness of SRS are eagerly awaited. But it will not be easy to carry out such studies. Although measurements have become more structured and standard-

<sup>1</sup> (see: <http://www.cebm.net/>). Its goal is to formulate guidelines to evaluate the quality of evidence according to the study design and the critical appraisal of prevention, diagnosis, prognosis, therapy, and harm studies. The system of the Oxford Centre for Evidence-Based Medicine is broader than most other evaluation systems (e.g., American Psychological Presidential Task Force on Evidence-Based Practice, 2006; Nathan & Gorman, 1998), focusing on the evaluation of the quality of evidence for the effectiveness of treatment interventions. Although referring for technical information to the Website of the Centre for Evidence-Based Medicine (<http://www.cebm.net/>), nearly all quality evaluation systems share the same basic assumption: better controlled studies (with the randomized controlled trial as standard) lead to stronger evidence for a therapeutic intervention.

ized, and designs are better than in the early SR evaluation studies (e.g., fewer post-hoc and more prospective studies), one fundamental problem in SR evaluation remains that randomized control trials (RCT) are not feasible. Offering SR applicants other treatment modes than SR(S) (e.g., psychotherapy) or even no treatment at all as one of the treatment conditions in such a study would be ethically very problematic, maybe even unethical. Applicants have often already waited a long time before they made the difficult decision to seek SR(S), and they usually want to start treatment as soon as possible. Participation in an RCT would imply SR(S) delay, and asking for such a delay would not only be unethical but counterproductive, as not many applicants would agree to participate. Also, even if a large enough number of participants were found, one would be worried about the representativeness of the subjects.

It is noteworthy that in the reviewed studies SR was always evaluated as a whole, probably since surgery is often considered to be “the ultimate treatment” of transsexuals. Indeed, treatment of transsexuals is often referred to only as SRS, ignoring important other aspects of the treatment. However, in almost every treatment center, SR consists of a number of diagnostic and treatments phases, usually based on the *Standards of Care* of the World Professional Organization of Transgender Health (WPATH, formerly known as HBGDA; Meyer et al., 2001). Studies assessing the necessity of the various elements (e.g., “real life experience”), characteristics of these elements (e.g., duration of the “real life experience”), or the need for or a specific order of these elements (e.g., breast removal before or after androgen treatment in FMs) in terms of outcome simply do not exist. Four important developments related to SRS also took place since Green and Fleming’s review (1990) and were evaluated in this review. For approximately 20 years, SRS has not only been conducted for adults but also for (some carefully selected) adolescents with GID. The results of the outcome studies of the Dutch team headed by Cohen-Kettenis are very encouraging: Adolescents with a life-long GID, who have no psychiatric comorbidity and are socially functioning well and supported, who underwent SRS, are satisfied and functioning well (Cohen-Kettenis & van Goozen, 1997; Smith et al., 2001, 2002, 2005a, 2005b). Of course, we recognize that replications by other treatment centers and longer follow-up periods are necessary. A second development is the growing attention that is being paid to the sexual functioning of persons with gender variance and the effects of SRS on sexuality. At the moment, the only conclusion that can be drawn with certainty is that many transgender people live sexually satisfying lives, but others do not. We do not know what the determinants of this variability are, and we have no sound theoretical models to understand

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it. Perhaps, models of the development of sexual identity in typical females and males (e.g., Diamond, 2005) can be used to study the sexual identity development of FMs and MFs. More generally, the sexual functioning in the long run of persons who underwent SRS remains unknown and sexological care for people who underwent an SRS is undeveloped. The effects of SRS on sexuality illustrates an important point in the evaluation of the effects of SRS. Although the alleviation of gender dysphoria is the key variable to measure the effects of SRS, other outcome variables (e.g., sexuality, psychological and social functioning) should not be forgotten, because they are crucial for the quality of life. However, it is also important to realize that the quality of life variables are multiply determined and not necessarily dependent on the effects of SRS (Newfield et al., 2006). The third development is a theoretical one. Traditionally the indication for an SRS was done from a psychiatric perspective: Only persons who did conform to the criteria for GID as formulated by the *DSM* were allowed to undergo a SRS to counter their suffering. Recently, from a humanistic perspective that values gender variance positively, many have argued that the goal of SRS is not to treat the suffering of a person with a mental illness but to help people in achieving self-actualization by supporting the development of a gender variant identity. Remarkably enough, this paradigmatic struggle between a (psycho)pathological and a humanistic model has not yet led to any innovation in the treatment of gender dysphoria. Adherents to both paradigms offer the same SRS as a treatment. In that sense, SRS is not strongly theory driven, but a pragmatic and effective way to strongly diminish the suffering of persons with gender dysphoria.

Finally, it is striking that a growing number of publications relate to the broad spectrum of gender manifestations (Carroll, 2007; Cole et al., 2000; Korrell & Lorah, 2007; Lawrence, 2007b; Lev, 2004, 2007b). Persons with gender variance other than transsexualism often choose treatments other than classical SRS, which is preceded by hormone treatment. In many countries, clinicians in private practice are willing to offer these treatments. There is no doubt that many individuals currently use hormones and undergo all types of gender affirming surgery in any combination or order, with or without laser treatment to remove body and facial hair, with or without speech therapy. Most university-based (and thus research-oriented) gender identity clinics do not offer such treatments, making it difficult to gather data on large, representative groups of nontranssexual gender variant people. Such information could be helpful in determining whether our understanding of GID and the appropriateness of SRS might benefit from understanding these milder forms of gender variant behaviors. However, at the moment, the



effectiveness of (parts of) SR for persons with gender variance other than transsexualism remains unknown.

### References

- Abramowitz, S. I. (1986). Psychosocial outcomes of sex reassignment surgery. *Journal of Consulting and Clinical Psychology, 54*, 183-189.
- à Campo, J., Nijman, H., Merckelbach, H., & Evers, C. (2003). Psychiatric comorbidity of gender identity disorders: A survey among Dutch psychiatrists. *American Journal of Psychiatry, 160*, 1332-1336.
- American Psychiatric Association. (1952). *Diagnostic and statistical manual*. Washington, DC: Author.
- American Psychiatric Association. (1968). *Diagnostic and statistical manual of mental disorders* (2<sup>nd</sup> ed.). Washington, DC: Author.
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3<sup>rd</sup> ed.). Washington, DC: Author.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3<sup>rd</sup> ed., rev.). Washington, DC: Author.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4<sup>th</sup> ed.). Washington, DC: Author.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4<sup>th</sup> ed., text-rev.). Washington, DC: Author.
- American Psychological Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *American Psychologist, 61*, 271-285.
- Bailey, M. (2003). *The man who would be queen*. Washington, DC: Joseph Harry Press.
- Balsma, A., Wouda, J., Vessies, D., Bakker, O., van de Wiel, H., & Weymar-Schultz, W. (1995). Onderzoek van de doorbloeding van de wand van de neovagina na erotische prikkeling bij man-vrouw transseksuelen [Blood flow in the neovagina after erotic stimulation in male-to-female transsexuals]. *Nederlands Tijdschrift voor Geneeskunde, 139*, 1713-1714.
- Barlow, D. H., Abel, G. G., & Blanchard, E. B. (1977). Gender identity change in a transsexual: An exorcism. *Archives of Sexual Behavior, 6*, 387-395.
- Barlow, D. H., Abel, G. G., & Blanchard, E.B. (1979). Gender identity change in transsexuals. *Archives of General Psychiatry, 36*, 1001-1007.
- Barlow, D. H., Reynolds, E. J., Agras, S. & Miss, J. (1973). Gender identity change in a transsexual. *Archives of General Psychiatry, 28*, 569-576.
- Barrett, J. (1998). Psychological and social function before and after phalloplasty. *International Journal of Transgenderism, 2*. Retrieved December 28, 2005, from <http://www.symposion.com/ijt/ijt0301.htm>
- Blanchard, R. (2005). Early history of the concept of autogynephilia. *Archives of Sexual Behavior, 34*, 439-446.
- Blanchard, R., & Sheridan, P. M. (1990). Gender reorientation and psychosocial adjustment. In R. Blanchard & B. W. Steiner (Eds.), *Clinical management of gender identity disorders in children and adults* (pp. 161-189). Washington, DC: American Psychiatric Press.
- Blanchard, R., Steiner, B.W., Clemmensen, L. H., & Dickey, R. (1989). Prediction of regrets in postoperative transsexuals. *Canadian Journal of Psychiatry, 34*, 43-45.
- Bockting, W. O., Knudson, G., & Goldberg, J. M. (2006). Counseling and mental health care for transgender adults and loved ones. *International Journal of Transgenderism, 9*, 35-82.
- Bodlund, O., & Kullgren, G. (1996). Transsexualism—General outcome and prognostic factors: A five-year follow-up study of nineteen transsexuals in the process of changing sex. *Archives of Sexual Behavior, 25*, 303-316.
- Broto, L. A., Gehring, D., Klein, C., Gorzalka, B. B., Thomson, S., & Knudson, G. (2005).

SURGICAL TREATMENT OF GENDER DYSPHORIA

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- Psychophysiological and subjective sexual arousal to visual stimuli in new women. *Journal of Psychosomatic Obstetrics and Gynecology*, 26, 237-244.
- Byne, W. (2007). Biology and sexual minority status. In I. H. Meyer & M. E. Northridge (Eds.), *The health of sexual minorities. Public health perspectives on lesbian, gay, bisexual and transgender populations* (pp. 65-90). New York: Springer.
- Carroll, R. A. (2007). Gender dysphoria and transgender experiences. In S. L. Leiblum (Ed.), *Principles and practice of sex therapy* (pp. 477-508). New York: Guilford Press.
- Chivers, M. L., & Bailey, J. M. (2000). Sexual orientation of female-to-male transsexuals: A comparison of homosexual and nonhomosexual types. *Archives of Sexual Behavior*, 29, 259-278.
- Chivers, M. L., Rieger, G., Latty, E., & Bailey, J. M. (2004). A sex difference in the specificity of sexual arousal. *Psychological Science*, 15, 736-744.
- Cohen-Kettenis P. T. (2001). Gender identity disorder in DSM? *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 391.
- Cohen-Kettenis, P. T., & Gooren, L. J. G. (1999). Transsexualism: A review of etiology, diagnosis and treatment. *Journal of Psychosomatic Research*, 46, 315-333.
- Cohen-Kettenis, P. T., & van Goozen, S. H. M. (1997). Sex reassignment of adolescent transsexuals: A follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 263-271.
- Cohen-Kettenis, P. T., & van Goozen, S. H. M. (1998). Pubertal delay as an aid in diagnosis and treatment of a transsexual adolescent. *European Child & Adolescent Psychiatry*, 7, 246-248.
- Cohen-Kettenis, P. T., & Pfäfflin, F. (2003). Transgenderism and intersexuality in childhood and adolescence: Making choices. Thousand Oaks, CA: Sage.
- Cole, S. S., Denny, D., Eyler, A. E., & Samons, S. L. (2000). Issues of transgender. In L. T. Szuchman & F. Muscarella (Eds.), *Psychological perspectives on human sexuality* (pp. 149-195). New York: Wiley.
- Coleman, E., Bockting, W. O., & Gooren, L. (1993). Homosexual and bisexual identity in sex-reassigned female-to-male transsexuals. *Archives of Sexual Behavior*, 22, 37-50.
- Daskalos, G. (1998). Changes in the sexual orientation of six heterosexual male-to-female transsexuals. *Archives of Sexual Behavior*, 27, 605-614.
- Davenport, C. W., & Harrison, S. I. (1977). Gender identity change in a female adolescent transsexual. *Archives of Sexual Behavior*, 4, 327-339.
- Day, P. (2002). *Trans-gender reassignment surgery*. New Zealand Health Technology Assessment (Technical Brief Report), 1, 1-38. Retrieved January 15, 2003, from <http://nzta.chmeds.ac.nz>
- De Cuypere, G., Jannes, C., & Rubens, R. (1995). Psychosocial functioning of transsexuals in Belgium. *Acta Psychiatrica Scandinavica*, 91, 180-184.
- De Cuypere, G., T'Sjoen, G., Beerten, R., Selvaggi, G., De Sutter, P., Hoebeke, P., et al. (2005). Sexual and physical health after sexual reassignment surgery. *Archives of Sexual Behavior*, 34, 679-690.
- Delemarre-van de Waal, H., & Cohen-Kettenis, P. (2006). Clinical management of gender identity disorder in adolescents. *European Journal of Endocrinology*, 155(Suppl. 1), 131-137.
- Dellaert, R., & Kunke, T. (1969). Investigations on a case of male transsexualism. *Psychotherapy and Psychosomatics*, 17, 89-107.
- Demmers, E. CH. (2004). 35 jaar behandeling transseksualiteit in Nederland. Hoe het begon [35 years of treatment of transsexuality in the Netherlands. How it started]. *Garant*, 10, 14-21.
- Denny, D. (2004). Changing models of transsexualism. In U. Leli & Drescher, J. (Eds.), *Transgender subjectivities: A clinician's guide* (pp. 25-40). New York: The Haworth Medical Press.
- Diamond, L. M. (2005). A new view of lesbian subtypes: Stable versus fluid identity trajectories over an 8 year period. *Psychology of Women Quarterly*, 29, 119-128.
- Dreger, A. D. (in press). The controversy surrounding *the man who would be queen*: A case

- history of the politics of science, identity, and sex in the internet age. *Archives of Sexual Behavior*.
- Elaut, E., De Cuypere, G., De Sutter, P., Gijs, L., Van Trotsenburg, M., Heylens, G., et al. (in press). Hypoactive sexual desire in transsexual women: Prevalence and association with testosterone. *European Journal of Endocrinology*.
- Eldh, J., Berg, A., & Gustafsson, M. (1997). Long term follow-up after sex reassignment surgery. *Scandinavian Journal of Plastic, Reconstructive, and Hand Surgery*, 31, 39-45.
- Fausto-Sterling, A. (2000). *Sexing the body. Gender politics and the construction of sexuality*. New York: Basic Books.
- Feldman, J. L., & Goldberg, J. M. (2006). Transgender primary medical care. *International Journal of Transgenderism*, 9, 3-34.
- Freundt, I., Toolenaar, T. A. M., Huikeshoven, F. J. M., Jeekel, H., & Drogendijk, A. C. (1993). Long-term psychosexual and psychosocial performance of patients with a sigmoid neovagina. *American Journal of Obstetrics and Gynecology*, 169, 1210-1214.
- Gijs, L. (2007, September). *Gender identity disorders and sexuality: And sexuality and gender identity*. Paper presented at the XX biennial symposium of the World Professional Association of Transgender Health, Chicago.
- Giordano, S. (in press). Gender atypical organization in children and adolescents: Ethico-legal issues and a proposal for new guidelines. *International Journal of Children's Rights*.
- Goddard, J. C., Vickery, R. M., Qureshi, A., Summerton, D. J., Khoosal, D., & Terry, T. R. (2007). Feminizing genitoplasty in adult transsexuals: Early and long-term surgical results. *British Journal of Urology International*, 100, 607-613.
- Gooren, L. (2006). The biology of human psychosexual differentiation. *Hormones and Behavior*, 50, 589-601.
- Gooren, L. J., & Delemarre-van de Waal, H. A. (1996). The feasibility of endocrine interventions in juvenile transsexuals. *Journal of Psychology and Human Sexuality*, 8, 69-74.
- Green, R. (1998). Sexual functioning in post-operative transsexuals: Male-to-female and female-to-male. *International Journal of Impotence Research*, 10(Suppl. 1), S22-S24.
- Green, R., & Fleming, D. T. (1990). Transsexual surgery follow-up: Status in the 1990s. *Annual Review of Sex Research*, 1, 163-174.
- Hage, J. J., & van Turnhout, A. A. (2006). Long-term outcome of metaidoioplasty in 70 female-to-male-transsexuals. *Annals of Plastic Surgery*, 57, 312-316.
- Hausman, B. L. (1995). *Changing sex: Transsexualism, technology, and the idea of gender*. Durham, NC: Duke University Press.
- Hepp, U., Klaghofer, R., Burkhard-Kübler, R., & Buddeberg, C. (2002). Behandlungsverläufe Transsexueller Patienten [Treatment history of transsexual patients: A retrospective follow-up study]. *Nervenarzt*, 73, 283-288.
- Hoebcke, P., De Cuypere, G., Ceulemans, P., & Monstrey, S. (2003). Obtaining rigidity in total phalloplasty: Experience with 35 patients. *Journal of Urology*, 169, 221-223.
- Jarrar, K., Wolff, E., & Weidner, W. (1996). Langzeitergebnisse nach geschlechtsangleichung bei männlichen transsexuellen [Long-term outcome of gender reassignment in male transsexuals]. *Urologe*, 35, 331-337.
- Kapoor, R., Sharma, D. K., Singh, K. J., Suri, A., Singh, P., Chaudhary, H., et al. (2006). Sigmoid vaginoplasty: Long-term results. *Urology*, 67, 1212-1215.
- Kaube, V. H., & Biemer, E. (1993). Ergebnisse geschlechtsangleichender Operationen an 30 Transsexuellen: Psychosoziale und sexuelle Adaptation—Chirurgische Komplikationen [Results of sex reassignment procedures in thirty transsexuals: Sociopsychological and sexual impact]. *Handchirurgie-Mikrochirurgie-Plastische Chirurgie*, 23, 276-278.
- Kockott, G., & Fahrner, E. M. (1988). Male to female and female to male transsexuals: A comparison. *Archives of Sexual Behavior*, 17, 539-546.
- Korell, S. C., & Lorah, P. (2007). An overview of affirmative psychotherapy and counseling with transgender clients. In K. J. Bieschke, R. M. Perez, & K. A. Debord (Eds.), *Hand-*

SURGICAL TREATMENT OF GENDER DYSPHORIA

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- book of counseling and psychotherapy with lesbian, gay, bisexual, and transgender clients (2nd. ed., pp. 271-288). Washington, DC: American Psychological Association.
- Krege, S., Bex, A., Lümmen, G., & Rübber, H. (2001). Male-to-female transsexualism: A technique, results and long-term follow-up in 66 patients. *British Journal of Urology, International*, 88, 396-402.
- Kuiper, A. J., & Cohen-Kettenis, P. T. (1988). Sex reassignment surgery: A study of 141 Dutch transsexuals. *Archives of Sexual Behavior*, 17, 439-457.
- Kuiper, A. J., & Cohen-Kettenis, P. T. (1998). Gender role reversal among postoperative transsexuals. *International Journal of Transgenderism*, 2. Retrieved March 15, 2005, from <http://www.symposion.com/ijt/ijt0502.htm>
- Landen, M., Walinder, J., Lambert, G., & Lundström, B. (1998). Factors predictive of regret in sex reassignment. *Acta Psychiatrica Scandinavica*, 97, 284-289.
- Lawrence, A. A. (2003). Factors associated with satisfaction or regret following male-to-female sex reassignment surgery. *Archives of Sexual Behavior*, 32, 299-315.
- Lawrence, A. A. (2004). Autogynephilia: A paraphilic model of gender identity disorder. *Journal of Gay & Lesbian Psychotherapy*, 8, 69-87.
- Lawrence, A. A. (2005). Sexuality before and after male-to-female sex reassignment surgery. *Archives of Sexual Behavior*, 34, 147-166.
- Lawrence, A. A. (2006a). Clinical and theoretical parallels between desire for limb amputation and gender identity disorder. *Archives of Sexual Behavior*, 35, 263-278.
- Lawrence, A. A. (2006b). Patient-reported complications and functional outcomes of male-to-female sex reassignment surgery. *Archives of Sexual Behavior*, 35, 717-727.
- Lawrence, A. A. (2007a). Becoming what we love: Autogynephilic transsexualism conceptualized as an expression of romantic love. *Perspectives in Biology and Medicine*, 50, 506-520.
- Lawrence, A. A. (2007b). Transgender health concerns. In I. H. Meyer & M. E. Northridge (Eds.), *The health of sexual minorities. Public health perspectives on lesbian, gay, bisexual and transgender populations* (pp. 473-505). New York: Springer.
- Lawrence, A. M., Latty, E. M., Chivers, M. L., & Bailey, M. (2005). Measurement of sexual arousal in postoperative male-to-female transsexuals using vaginal photoplethysmography. *Archives of Sexual Behavior*, 34, 135-145.
- Lev, A. I. (2004). *Transgender emergence: Therapeutic guidelines for working with gender variant people and their families*. Binghamton, NY: Haworth Press.
- Lev, A. I. (2007a). *The ten tasks of the mental health provider*. Manuscript submitted for publication.
- Lev, A. I. (2007b). Transgender communities: Developing identity through connection. In K. J. Bieschke, R. M. Perez, & K. A. Debord (Eds.), *Handbook of counseling and psychotherapy with lesbian, gay, bisexual, and transgender clients* (2nd. ed., pp. 147-175). Washington, DC: American Psychological Association.
- Lief, H., & Hubschman, L. (1993). Orgasm in postoperative transsexual. *Archives of Sexual Behavior*, 22, 145-155.
- Lindemalm, G., Korlin, D., & Uddenberg, N. (1987). Prognostic factors vs. outcome in male-to-female transsexualism. *Acta Psychiatrica Scandinavica*, 75, 268-274.
- Lobato, M., Koff, W. J., Manenti, C., da Fonseca Seger, F., Salvador, J., da Graça Fortes Borges, M., et al. (2006). Follow-up of sex reassignment surgery in transsexuals: A Brazilian cohort. *Archives of Sexual Behavior*, 35, 711-715.
- Lundstrom, B. (1981). *Gender dysphoria*. Gothenburg: Scandinavian University Press.
- Lundstrom, B., Pauly, I., & Walinder, J. (1984). Outcome of sex reassignment surgery. *Acta Psychiatrica Scandinavica*, 70, 289-294.
- Marks, I., Green, R., & Mataix-Cols, D. (2000). Adult GID can remit. *Comprehensive Psychiatry*, 41, 273-275.
- Marks, I., & Mataix-Cols, D. (1997). Four-year remission of transsexualism after comorbid obsessive-compulsive disorder improved with self-exposure therapy. *British Journal of Psychiatry*, 171, 389-390.
- Mate-Kole, C., Freschi, M., & Robin, A. (1990). A controlled study of psychological and



- social change after surgical gender reassignment in selected male transsexuals. *British Journal of Psychiatry*, 157, 261-264.
- McHugh, P. (2004). Surgical sex. *First Things*, 147, 34-38.
- McKenna, W., & Kessler, S. (2006). Transgendering. Blurring the boundaries of gender. In K. Davis, M. Evans, & J. Lorber (Eds.), *Handbook of gender and women's studies* (pp. 342-354). London: Sage.
- Meyer, W., Bockting, W., Cohen-Kettenis, P. T., Coleman, E., DiCeglie, D., Devor, H., et al. (2001). *The Standards of Care of the Harry Benjamin International Gender Dysphoria Association, 6th version*. WPATH. Retrieved March 15, 2005, from <http://wpath.org/Documents2/socv6.pdf>
- Meyerowitz, J. (2002). How sex changed. A history of transsexuality in the United States. Cambridge: Harvard University Press.
- Michel, A., Mormont, C., & Legros, J. J. (2001). A psycho-endocrinological overview of transsexualism. *European Journal of Endocrinology*, 145, 365-376.
- Money, J., & Ambinder, R. (1978). Two-year, real-life diagnostic test: Rehabilitation versus cure. In J. P. Brady & H. K. Brodie (Eds.), *Controversy in psychiatry* (pp. 833-845). Philadelphia: W. B. Saunders.
- Monstrey, S., & De Cuypere, G. (2007). *Is gender reassignment surgery evidence-based? An overview of the evidence based grade of the different aspects of the gender reassignment procedure for female-to-male and male-to-female transsexuals*. Manuscript submitted for publication.
- Muirhead-Alwood, S. K., Royle, M. G., & Young, R. (1999, August). *Sexuality and satisfaction with surgical results in male to female transsexuals*. Poster presentation at the XVI HBIDGDA Biennial Symposium, London.
- Mueller, A., Kiesewetter, F., Binder, H., Beckmann, M., & Dittrich, R. (2007). Long-term administration of testosterone undecanoate every 3 months for testosterone supplementation in female-to-male transsexuals. *The Journal of Clinical Endocrinology & Metabolism*, 92, 3470-3475.
- Nathan, P. E., & Gorman, J. M. (1998). Treatments that work—And what convinces us they do. In P. E. Nathan & J. M. Gorman (Eds.), *A guide to treatments that work* (pp. 3-25). Oxford: Oxford University Press.
- Newfield, E., Hart, S., Dibble, S., & Kohler, L. (2006). Female-to-male transgender quality of life. *Quality of Life Research*, 15, 1447-1457.
- Olsson, S., & Möller, A. (2006). Regret after sex reassignment surgery in a male-to-female transsexual: A long term follow-up. *Archives of Sexual Behavior*, 35, 501-506.
- Pauly, I. B. (1981). Outcome of sex reassignment surgery for transsexuals. *Australian and New Zealand Journal of Psychiatry*, 15, 45-51.
- Pauly, I. B. (1981). Outcome of sex reassignment surgery for transsexuals. *Australian and New Zealand Journal of Psychiatry*, 15, 45-51.
- Pfäfflin, F. (1992). Regrets after sex reassignment surgery. *Journal of Psychology and Human Sexuality*, 5, 69-85.
- Pfäfflin, F., & Junge, A. (1992). *Geschlechtsumwandlung: Abhandlungen zur Transsexualität*. Stuttgart: Schattauer. (English translation: Pfäfflin, F., & Junge, A. (1998). *Sex reassignment: Thirty years of international follow-up studies. A comprehensive review, 1961-1991* [R. B. Jackson & A. B. Meier, Trans.]). Retrieved March 15, 2005, from <http://www.symposin.com/ijt/books/index.htm>
- Pomeroy, W. B. (1969). Transsexualism and sexuality: Sexual behavior of pre- and postoperative male transsexuals. In R. Green & J. Money (Eds.), *Transsexualism and sex reassignment* (pp.183-188). Baltimore: The Johns Hopkins University Press.
- Rakic, Z., Starcevic, V., Maric, J., & Kelin, K. (1996). The outcome of sex reassignment surgery in Belgrade: 32 patients of both sexes. *Archives of Sexual Behavior*, 25, 515-525.
- Raufleish, U., Barth, D., & Battegay, R. (1998). Resultate einer Langzeitkatamnese von Transsexuellen [Results of a long-term follow-up of transsexuals]. *Nervenarzt*, 69, 799-805.
- Rehman, J., Lazar, S., Benet, A. E., Schaefer, L. C., & Melman, A. (1999). The reported

SURGICAL TREATMENT OF GENDER DYSPHORIA

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- sex and surgery satisfaction of 28 postoperative male-to-female transsexual patients. *Archives of Sexual Behavior*, 28, 71-89.
- Schlatterer, K., Yassourides, A., von Werder, K., Poland, D., Kemper, J., & Stalla, G. K. (1998). A follow-up study for estimating the effectiveness of a cross-gender hormone substitution therapy on transsexual patients. *Archives of Sexual Behavior*, 27, 475-492.
- Schrock, D. P., Reid, L., & Boyd, E. (2005). Transsexuals embodiment of womanhood. *Gender and Society*, 19, 317-335.
- Schrock, D. P., & Reid, L. L. (2006). Transsexuals' sexual stories. *Archives of Sexual Behavior*, 35, 75-86.
- Schroder, M., & Carroll, R. (1999). Sexological outcomes of gender reassignment surgery. *Journal of Sex Education and Therapy*, 24, 137-146.
- Selvaggi, G., Ceulemans, P., De Cuypere, G., VanLanduyt, K., Blondeel, P., Hamdi, M., et al. (2005). Gender identity disorder: General overview and surgical treatment for vaginoplasty in male-to-female transsexuals. *Plastic & Reconstructive Surgery*, 116, 135e-145e.
- Selvaggi, G., Monstrey, S., Ceulemans, P., T'Sjoen, G., De Cuypere, G., & Hoebeke, P. (2007). Genital sensitivity after sex reassignment surgery in transsexual patients. *Annals of Plastic Surgery*, 58, 427-433.
- Smith, Y. L. S., Cohen, L., & Cohen-Kettenis, P. T. (2002). Postoperative functioning of adolescent transsexuals: A Rorschach study. *Archives of Sexual Behavior*, 31, 255-261.
- Smith, Y. L. S., van Goozen, S. H. M., & Cohen-Kettenis, P. T. (2001). Adolescents with gender identity disorder who were accepted or rejected for sex reassignment surgery: A prospective follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 472-481.
- Smith, Y. L. S., van Goozen, S. H. M., Kuiper, A. J., & Cohen-Kettenis, P. T. (2005a). Sex reassignment: Outcomes and predictors of treatment for adolescent and adult transsexuals. *Psychological Medicine*, 35, 89-99.
- Smith, Y. L. S., van Goozen, S. H. M., Kuiper, A. J., & Cohen-Kettenis, P. T. (2005b). Transsexual subtypes: Clinical and theoretical significance. *Psychiatry Research*, 137, 151-160.
- Snaithe, P., Butler, A., Donnelly, J., & Bromham, D. (1994). A regional gender reassignment service. *Psychiatric Bulletin*, 18, 753-756.
- Socarides, C. C. (1969). The desire for sexual transformation: A psychiatric evaluation of transsexualism. *American Journal of Psychiatry*, 125, 1419-1425.
- Socarides, C. C. (1988). *The preoedipal origin and psychoanalytic therapy of sexual perversions*. Madison, WI: International Universities Press.
- South and West Development and Evaluation Service. (1998). *Surgical gender reassignment for male-female transsexual people*. Retrieved January 15, 2003, from <http://www.soton.ac.uk/~dec/>
- Speer, S. A., & Green, R. (2007). On passing: The interactional organization of appearance attributions in the psychiatric assessment of transsexual patients. In V. Clarke, & E. Peel (Eds.), *Out in psychology. Lesbian, gay, bisexual, trans and queer perspectives* (pp. 335-368). New York: Wiley.
- Speer, S. A., & Parsons, C. (2006). Gatekeeping gender: Some features of the use of hypothetical questions in the psychiatric assessment of transsexual patients. *Discourse & Society*, 17, 785-812.
- Stein, M., Tiefer, L., & Melman, A. (1990). Follow-up observations of operated male-to-female transsexuals. *The Journal of Urology*, 143, 1188-1192.
- Steinbrook, R. (2007). Guidance for guidelines. *New England Journal of Medicine*, 356, 331-333.
- Tsoi, W. F. (1993). Follow-up study of transsexuals after sex-reassignment surgery. *Singapore Medical Journal*, 34, 515-517.
- Tsoi, W. F., Kok, L. P., Yeo, K. L. B., & Ratnam, S. S. (1995). Follow-up study of female

- transsexuals. *Annals Academy of Medicine Singapore*, 24, 664-667.
- Verschoor, A. M., & Poortinga, J. (1988). Psychosocial differences between Dutch male and female transsexuals. *Archives of Sexual Behavior*, 17, 173-178.
- Volkan, V. D., & Greer, W. F. (1996). True transsexualism. In I. Rosen (Ed.), *Sexual deviation* (3rd ed., pp. 158-173). Oxford: Oxford University Press.
- Walinder, J., Lundström, B., & Thuwe, I. (1978). Prognostic factors in the assessment of male transsexuals for sex reassignment surgery. *British Journal of Psychiatry*, 132, 16-20.
- Walworth, J. (1997). Sex reassignment surgery in male-to-female transsexuals: Client satisfaction in relation to selection criteria. In B. Bullough, V. L. Bullough, & J. Elias (Eds.), *Gender blending* (pp. 352-373). Amherst, NY: Prometheus Books.
- Whittle, S. (2002). *Respect and equality: Transsexual and transgender rights*. London: Cavendish.
- Widiger, T. A., & Trull, T. J. (2007). Plate tectonics in the classification of personality disorder. Shifting to a dimensional model. *American Psychologist*, 62, 71-83.
- Wren, B. (2000). Early physical intervention for young people with atypical gender identity development. *Clinical Child Psychology and Psychiatry*, 5, 220-223.
- World Health Organization. (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines*. Geneva: Author.
- Zucker, K. J., & Bradley, S. J. (1995). *Gender identity disorder and psychosexual problems in children and adolescents*. New York: Guilford Press.
- Zucker, K. J., & Cohen-Kettenis, P. T. (in press). Gender identity disorder in children and adolescents. In D. L. Rowland & L. Incrocci (Eds.), *Handbook of sexual and gender identity disorders*. New York: Wiley.

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